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Authorised and notified according to Article 29 of the Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011

MEMBER OF EOTA

European Technical Assessment ETA-26/0204 of 2026/05/12

I General Part

Technical Assessment Body issuing the ETA and designated according to Article 29 of the Regulation (EU) No 305/2011: ETA-Danmark A/S

Trade name of the construction product:	EJOT Iso-Bar
Product family to which the above construction product belongs:	Distance fixing system
Manufacturer:	EJOT SE & Co. KG Market Unit Construction In der Stockwiese 35 DE-57334 Bad Laasphe
Manufacturing plant:	EJOT Manufacturing Plant No. 74
This European Technical Assessment contains:	30 pages including 25 annexes which form an integral part of the document
This European Technical Assessment is issued in accordance with Article 95(4) of Regulation (EU) 2024/3110, on the basis of:	EAD 331985-00-0604 – Distance fixing system
This version replaces:	

II SPECIFIC PART OF THE EUROPEAN TECHNICAL ASSESSMENT

1 Technical description of product

The anchor element EJOT Iso-Bar consists of a profiled, fiberglass-reinforced plastic reinforcement bar with nominal diameters of 12, 16 and 20 mm, into which a connector (Connector EJOT Delta-PT DS) of size M6, M8 or M12 is screwed in at the factory, a hexagon nut and a washer

The anchor element EJOT Iso-Bar are post-installed anchor systems placed into predrilled holes in in concrete and masonry and anchored by bonding.

The anchor element EJOT Iso-Bar distance fixing systems consist of a profiled, fiberglass-reinforced plastic rod (Combar), the Connector (EJOT Delta PT DS) and hexagon screw and washer are made of stainless steel. Additionally, the injection mortar EJOT Multifix USF is part of the anchoring system.

The product description is given in Annexes 1-5.

2 Specification of the intended use in accordance with the applicable European Assessment Document (hereinafter EAD)

The intended use is fixings through an ETICS into the loadbearing wall of heavy-duty fixtures such as awnings, French balconies, canopies, satellite dishes, etc.
The system is used for distance installations in the following insulated base materials:

- Normal weight cracked or non-cracked concrete (base material group a)
- Solid masonry bricks (base material group b)
- Perforated or hollow bricks (base material group c)
- autoclaved aerated concrete (base material group d)

Reference to base material group in EAD 330499-02-0601 and EAD 330076-00-0604.

Anchorages subject to: Static or quasi-static loads.
Temperature range:

- T1: -40°C to +40°C (max. short term temperature +40°C and max. long-term temperature +24°C)
- T2: -40 °C to +80 °C (max long term temperature +50 °C and max short term temperature +80 °C)

The minimum and the maximum installation temperature are specified by the manufacturer within the above range.

Use categories in respect of use:

- Category d/d: Use in dry masonry and concrete Category
- Category w/w: Use in wet masonry and concrete Category.

This ETA applies only where concrete or masonry members in which the distance fixing systems are embedded are subject to static or quasi static actions in tension, pressure, shear or combined tension and shear or pressure and shear or bending.

In case of a product use in ETICS or insulations, it must be ensured that no debris and remaining of ETICS or insulations influence the load bearing capacity in the base material.

The performances given in Section 3 are only valid if the anchor is used in compliance with the specifications and conditions given in the Annexes.

The provisions made in this European Technical Assessment are based on an assumed intended working life of the anchor of 50 years.

The indications given on the working life cannot be interpreted as a guarantee given by the producer or Assessment Body but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

3 Performance of the product and references to the methods used for its assessment

3.1 Characteristics of product

Safety in case of fire (BWR 2):
Reaction to fire:
Class A1 for metal parts and bonding material.

Safety in use (BWR4):
Resistance of anchor rods fixed with anchor adhesive in the base material masonry:
The rods with material specification as stated in Annex 4 are covered by the following ETAs which provide the relevant performances:
- ETA-16/0089 EJOT Multifix USF Vinylester / Sormat ITH Vinylester

Resistance of the anchor rods fixed with anchor adhesive in the base material concrete:
The rods with material specification as stated in Annex 4 are covered by the following ETAs which provide the relevant performances:

For cracked and uncracked concrete
- ETA-16/0107 EJOT Multifix USF Vinylester / Sormat ITH Vinylester

Resistance of the plastic part
- Characteristic resistance of the plastic part transferring load to failure under tension loading is not relevant due to the steel element
- Characteristic resistance of the plastic part transferring load to failure under pressure loading
- Characteristic resistance of the plastic part transferring load to failure under shear loading
- Characteristic resistance to failure under pressure load and displacement (buckling of cantilever arm)
- Characteristic resistance to failure under combined shear and pressure load and displacements (buckling of cantilever arm)
- Characteristic resistance under shear loads and displacements (failure of plastic part transferring load, cantilever arm)
- Maximum installation torque moment

The above essential characteristics are detailed in Annexes 6-21.

Durability
The verification of durability is part of testing of the essential characteristics. Durability is only ensured if the specifications of intended use according to Annex 22-25 are taken into account.

3.2 Methods of assessment

The assessment of fitness of the anchor for the intended use in relation to the requirements for mechanical resistance and stability and safety in use in the sense of the Basic Requirements 4 has been made in accordance with the EAD 331985-00-0604 – Distance fixing system.

4 Assessment and verification of constancy of performance (hereinafter AVCP) system applied, with reference to its legal base

4.1 AVCP system

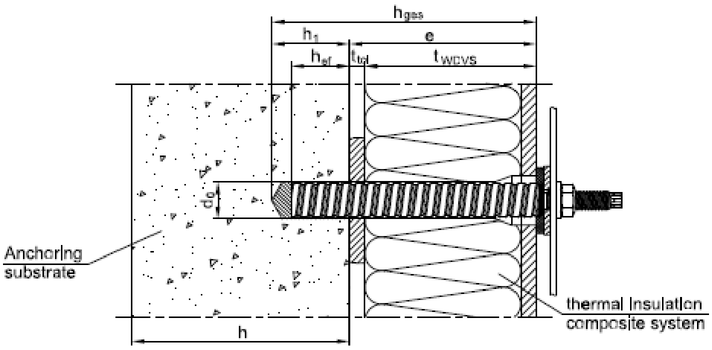
According to the decision 96/582/EC of the European Commission, the system(s) of assessment and verification of constancy of performance (see Annex V to Regulation (EU) No 305/2011) is **1**.

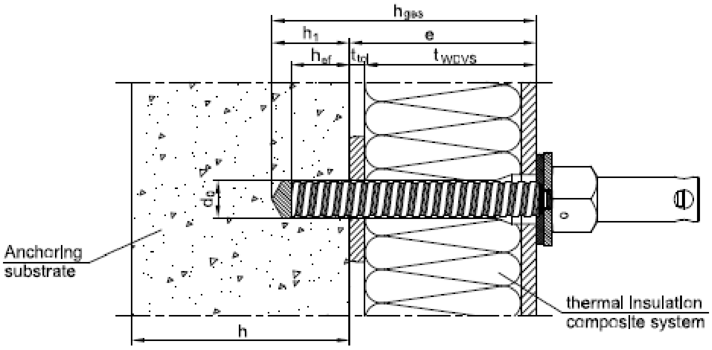
5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at ETA-Danmark prior to CE marking.

Issued in Copenhagen on 2026-05-12 by

Thomas Bruun
Managing Director, ETA-Danmark





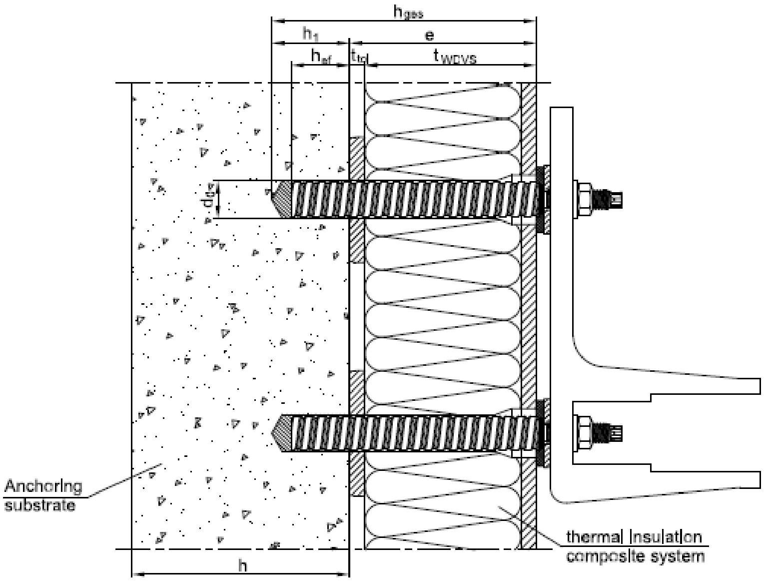


Table 1: Legend			
h	Thickness of the wall component (load-bearing substrate)	e	Thickness of the non-load-bearing layer (t_{ETICS} + t_{tol})
h_{ef}	Effective anchoring depth	t_{tol}	Thickness of old render / adhesive
h_1	Depth of the drill hole in the substrate	t_{WDVS}	Thickness of ETICS system incl. top render
h_{ges}	Total depth of drill hole	d_0	Nominal drill diameter

EJOT Iso-Bar	**Annex 1**
Application / Examples of installation	

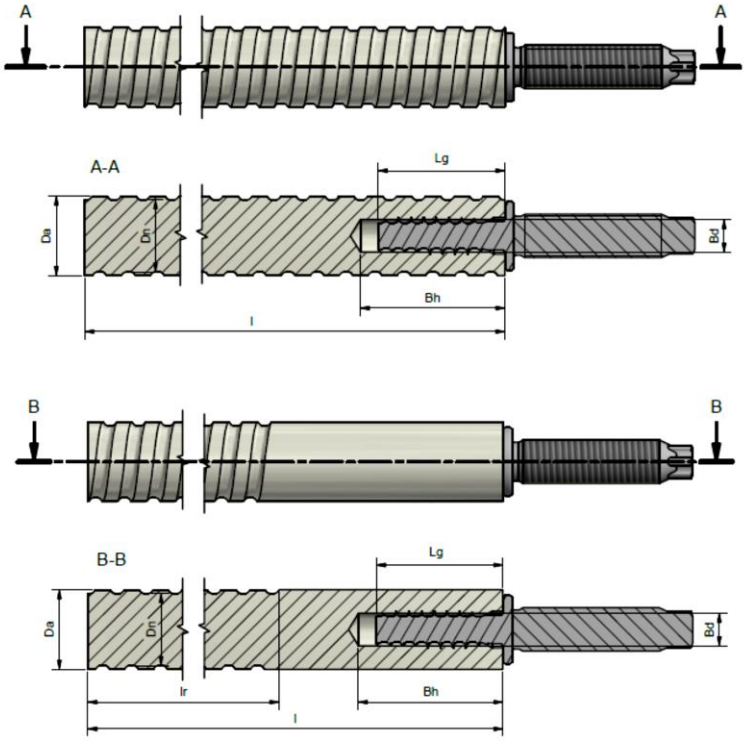
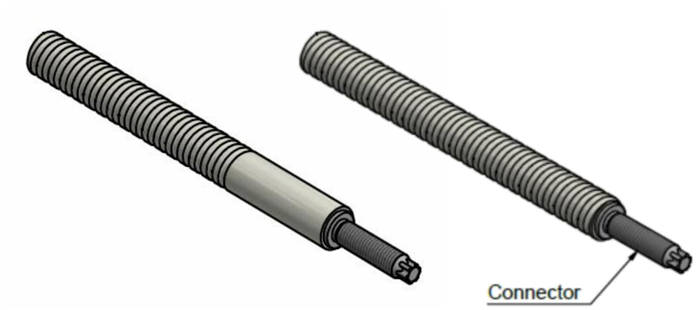
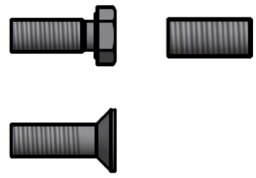


Table 2: Dimensions and alternative rod diameters

Designation		Unit	EJOT Iso-Bar	Option 12mm	Option 16mm	Option 20mm
Nominal diameter	D_n	[mm]	20	12	16	20
External diameter	D_a	[mm]	22	13,5	18	22
Bored diameter	B_d	[mm]	9,2	5,4	7,2	9,2
Borehole depth	B_h	[mm]	40	35	40	40
Length	l	[mm]	0 – 380mm - for additional lengths, see external report			
Ribbed length	lr	[mm]	$h_{ef} \le l_R \le l$			
Designation Connector and Connector Thread*			PT 100 / M12	PT60 / M6	PT60 / M6 PT80 / M8	PT60 / M6 PT80 / M8 PT 100 / M12



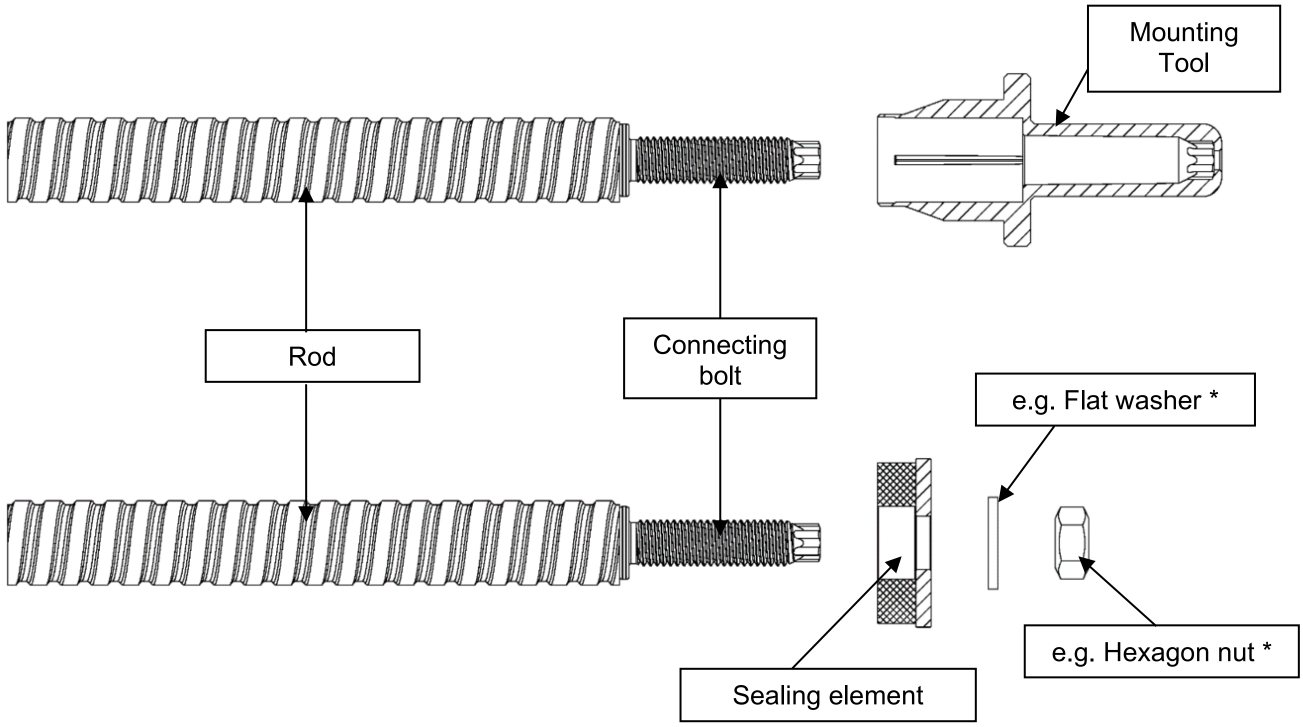
*optional head shape of the connector for a factory-pre-assembled add-on part, metric thread without drive also possible



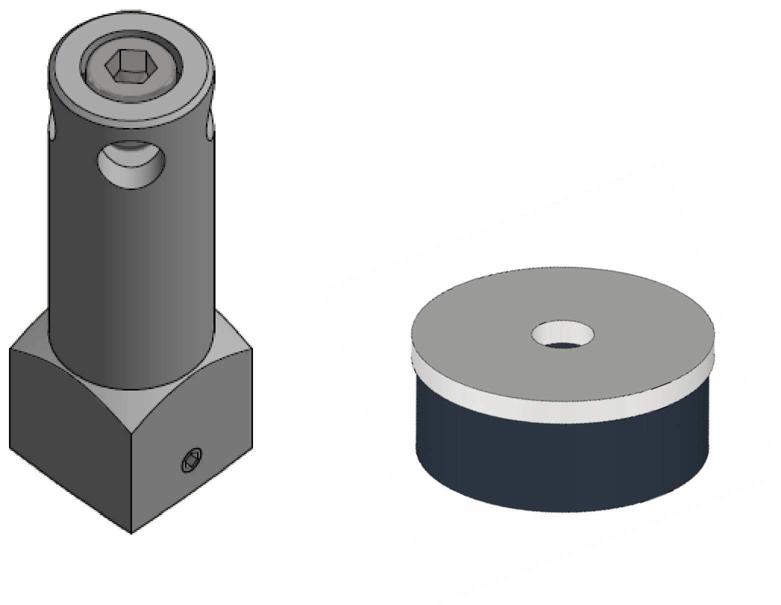
EJOT Iso-Bar

Dimensions and alternative rod diameters

Annex 2



*) Other attachments are possible – see also Appendix 1 – for example, a mounting adapter for facade greening (see the following illustration)



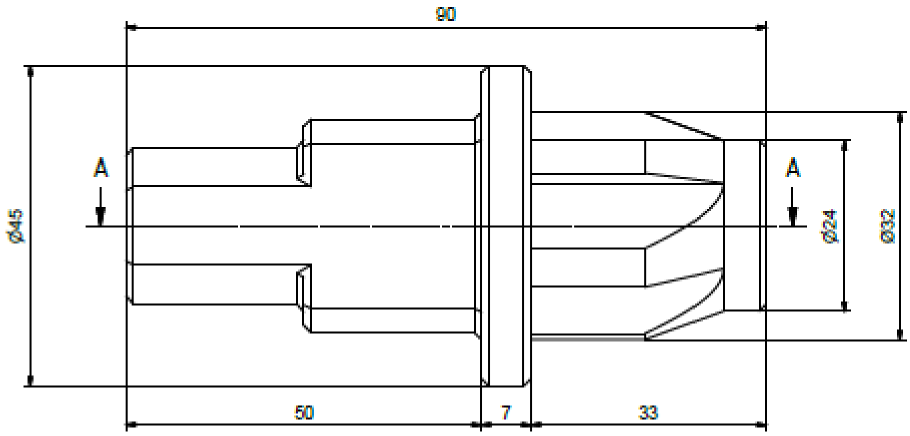
EJOT Iso-Bar	**Annex 3**
Components	

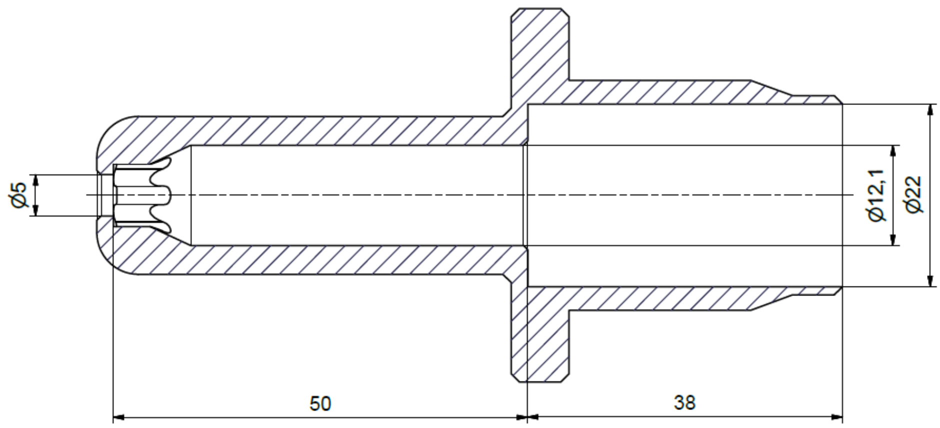
Table 3: Materials

Designation	Material
Rod	Glass fiber composite with approval Z-1.6-238
Connection bolt	Stainless steel A4; 316 L according to ASTM A 493 $R_m \geq 640$ N/mm² Corrosion resistance class CRC III DIN EN 1993-1-4:2015-10
Sealing element	Washer: Stainless steel A4 DIN 440:2001-03 or anodized aluminum (AlMg3) Sealing ring: closed-cell EPDM or joint sealing tape BG 1 according to DIN 18542
Flat washer (optional)	DIN EN ISO 7089:2000-11 Corrosion resistance class CRC III DIN EN 1993-1-4:2015-10
Hexagon nut (optional)	DIN EN ISO 4032:2013-04 Strength class 50 according to DIN EN 3506-2:2010-04 Corrosion resistance class CRC III DIN EN 1993-1-4:2015-10
Mounting Tool	Polyamide, glass fiber reinforced
Composite mortar (Injection Mortar)	EJOT Multifix USF Vinylester / Sormat ITH Vinylester ETA-16/0107 Use in concrete, 19.04.2024 ETA-16/0089 Use in masonry, 24.11.2016

Table 4: Material details for rod

Designation	Unit / Value	
Characteristic tensile strength	f_{tk}	1.000 N/mm²
Design value of tensile strength	f_{td}	445 N/mm²
Modulus of elasticity (tensile and compression)	E	60.000 N/mm²
Design value compressive strength	f_{cd}	265 N/mm²
Electrical resistance	R	10^{10} Ωm
Density	ρ	2,2 g/cm³
Fire Class	[-]	B-s1,d0





All dimensions in mm

The illustration shows the version for the Iso-Bar (rod diameter 20 mm and M12 connecting bolt).

Other versions are available for different rod diameters and bolt geometries.

EJOT Iso-Bar	**Annex 5**
Mounting tool	

Table 5: Mounting values for fixing attachment

			Iso-Bar PT100/M12	Option: PT80/M8	Option: PT60/M6
Connection thread	Ø x l	[mm]	M12 x 39	M8 x 30	M6 x 30
Usable thread length	t_{fix}	[mm]	≤ 22	≤ 21	≤ 23
Tightening torque Concrete	T_{inst}	[Nm]	≤ 25	≤ 12	≤ 6
Tightening torque solid brick	T_{inst}	[Nm]	≤ 5	≤ 5	≤ 5
Tightening torque perforated brick	T_{inst}	[Nm]	≤ 2	≤ 2	≤ 2
Through hole	D	[mm]	≥ 14	≥ 10	≥ 7

Table 6: Installation values for anchoring in concrete

			Iso-Bar Ø 20mm	Option: Ø 16mm	Option: Ø 12mm
Drill hole diameter	d_0	[mm]	24	20	16
Drill hole depth	l_1	[mm]	h_{ef} + 5 mm		
Diameter of steel brush	d_{Br}	[mm]	18	22	26
Minimum embedment depth	$h_{ef,min}$	[mm]	40	40	40
Max. embedment depth	$h_{ef,max}$	[mm]	96	128	160
Minimum edge distance	c_{min}	[mm]	60	80	100
Minimum spacing	s_{min}	[mm]	60	80	100
Min. concrete thickness	h_{min}	[mm]	$h_{ef} + 2\ d_0 \geq 100$		
Characteristic edge distance	c_{cr}	[mm]	1,5 h_{ef}		
Characteristic spacing	s_{cr}	[mm]	3 h_{ef}		

Table 7: Installation values for anchoring in perforated or solid brick masonry with mesh sleeve

			Iso-Bar Ø 20mm	Option: Ø 16mm	Option: Ø 12mm
Drill hole diameter	d_0	[mm]	26	22	18
Drill hole depth	l_1	[mm]	h_{ef} + 10 mm		
Diameter brush	d_{Br}	[mm]	28	24	22
Metal mesh sleeve *)	SH	[mm]	SH 25	SH 20	SH 16
Minimum anchoring depth	$h_{ef,min}$	[mm]	80	80	80

*) see details on Annex 8

Table 8: Installation values for anchoring in solid brick masonry without mesh sleeve

			Iso-Bar Ø 20mm	Option: Ø 16mm	Option: Ø 12mm
Drill hole diameter	d_0	[mm]	24	20	16
Drill hole depth	l_1	[mm]	h_{ef} + 5 mm		
Diameter brush	d_{Br}	[mm]	26	22	18
Minimum anchoring depth	$h_{ef,min}$	[mm]	80 (100 for aerated autoclaved concrete AAC)		

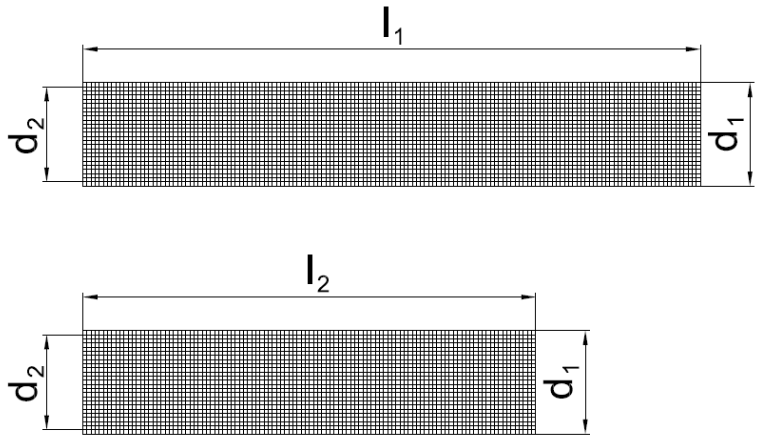
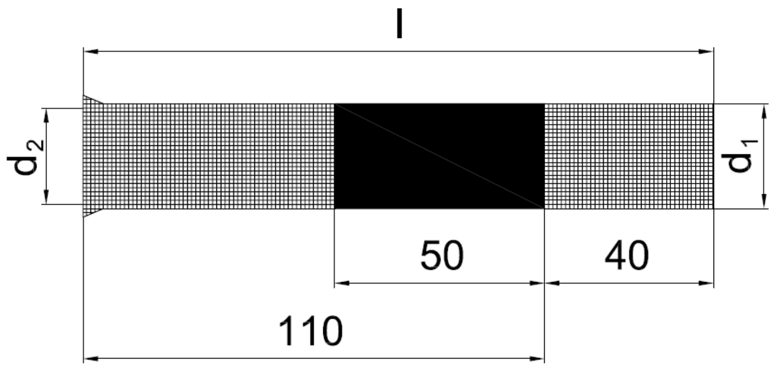


Table 9: Metal mesh sleeve					
			Iso-Bar Ø 20mm SH 25	Option:Ø 16mm SH 20	Option: Ø 12mm SH 16
Outer diameter d_1	d_1	[mm]	25.0	20.0	16.0
Inner diameter d_2	d_2	[mm]	23.5	19.0	14.5
Length open SH l_1	l_1	[mm]	150	150	150
Length closed SH l_2	l_2	[mm]	100	100	100
Mesh size	[-]	[mm]	1.0		
Wire diameter	[-]	[mm]	0.35		

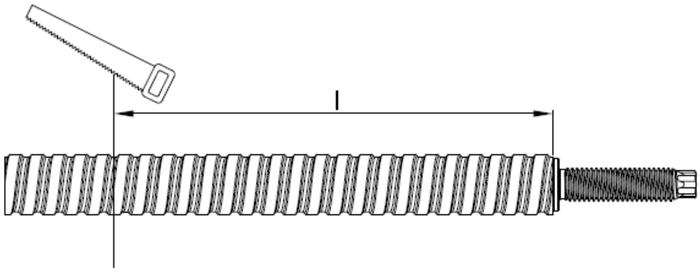
The double-open-ended version (e.g. cut from a continuous length) with a length l_1 must be closed on one side using a pair of pliers before installation. After closing, the total length must correspond to the length for the single-ended closed version l_2 specified in the table.



Only for the masonry block “Hbl France”, the following partially closed metal sleeve is to be used.

The covering must be positioned as shown in the illustration above and can be made from reinforced, self-adhesive fabric tape, for example.

Table 10: Metal mesh sleeve for Hbl France					
			Iso-Bar Ø 20mm SH 25	Option:Ø 16mm SH 20	Option: Ø 12mm SH 16
Outer diameter d_1	d_1	[mm]	25.0	20.0	16.0
Inner diameter d_2	d_2	[mm]	23.5	19.0	14.5
Length l	l	[mm]	150	150	150
Mesh size	[-]	[mm]	1.0		
Wire diameter	[-]	[mm]	0.35		



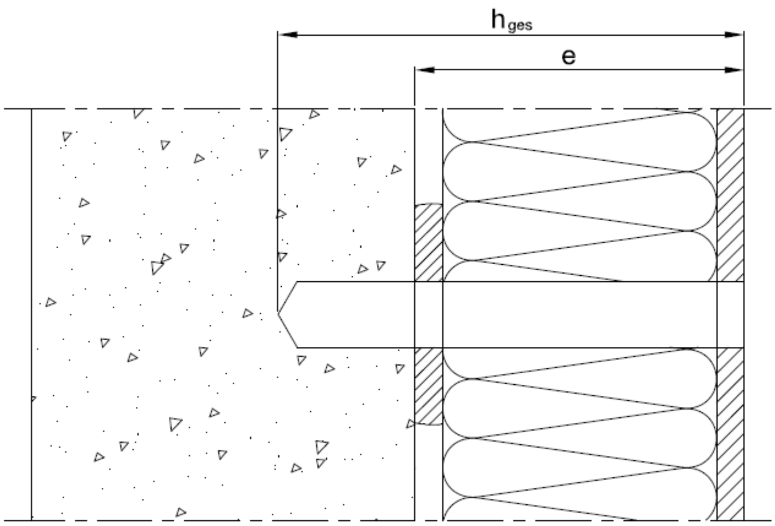


Table 11: Determining the total length l and the total drilling depth h_{ges}			
Substrate	Mesh Sleeve	length l	drilling depth h_{ges}
concrete	without	e + h_{ef} 1)	e + h_{ef} + 5
solid brick	without	e + h_{ef} 1)	e + h_{ef} + 5
solid and hollow brick	see Annex 8 / 9	e + h_{ef} 1)	e + h_{ef} + 10

1) see Table 6 to 8 on Annex 6 and 7

Table 12: Load-bearing capacity of connecting screw (Steel failure)

Rod diameter	Connection thread	$N_{Rk,s}$	$N_{Rd,s}$	$V_{Rk,s}$	$V_{Rd,s}$
[mm]	[mm]	[kN]	[kN]	[kN]	[kN]
Ø 12, 16, 20	M6	12.9	7.5	6.4	4.5
Ø 16, 20	M8	23.4	13.7	11.7	8.2
Ø 20	M12	54.0	31.6	27.0	19.0

Table 12.1: Partial safety factor steel failure

$\gamma_{Ms(tensile)}$	1.71	Steel, tensile
$\gamma_{Ms(shaer)}$	1.42	Steel, shear

Table 13: Load-bearing capacity threaded connector on Rod (Connector-Rod failure)

Rod diameter	Connection thread	$N_{Rk,con}$	$V_{Rk,con}$	$V_{Rk,con(leverarm)}$
[mm]	[mm]	[kN]	[kN]	[kN]
Ø 12	M6	6.7	2.9	1.3
Ø 16	M6	6.7	2.9	1.8
	M8	10.0	4.9	2.3
Ø 20	M8	10.0	4.9	2.8
	M12	11.3	9.0	3.2

Table 13.1: Partial safety factors Connector-Combar failure

γ_{Mcon}	1,7	Connector

Table 14: Displacement under tensile stress

Rod diameter	δ / kN
[mm]	[mm/kN]
Ø 12	0,16
Ø 16	0,16
Ø 20	0,16

Table 15: Displacement under transverse stress

Rod diameter	δ / kN
[mm]	[mm/kN]
Ø 12	0,16
Ø 16	0,10
Ø 20	0,05

Table 16: Tensile strength in concrete (Combined extraction and concrete excavation)
Range of application with minimum anchoring depth **at h_{ef} ≥ 40mm < 7 x Ø**

Rod diameter®		Temperature (24°C/40°C)		Temperature (50°C/80°C)	
	h_{ef}	$\tau_{Rk,ucr}$	$\tau_{Rk,cr}$	$\tau_{Rk,ucr}$	$\tau_{Rk,cr}$
[mm]	[mm]	[N/mm²]	[N/mm²]	[N/mm²]	[N/mm²]
Ø 12	< 84	4.2	3.4	3.1	2.5
Ø 16	< 112	4.2	3.4	3.1	2.5
Ø 20	< 140	4.2	3.4	3.1	2.5

Table 17: Tensile capacity in concrete (Combined extraction and concrete excavation)
Scope of application for large anchoring depth **hef ≥ 7 x Ø**

Rod diameter		Temperature (24°C/40°C)		Temperature (50°C/80°C)	
	h_{ef}	$\tau_{Rk,ucr}$	$\tau_{Rk,cr}$	$\tau_{Rk,ucr}$	$\tau_{Rk,cr}$
[mm]	[mm]	[N/mm²]	[N/mm²]	[N/mm²]	[N/mm²]
Ø 12	≥ 84	4.2	4.2	3.1	3.1
Ø 16	≥ 112	4.2	4.2	3.1	3.1
Ø 20	≥ 140	4.2	4.2	3.1	3.1

Table 18: Increase factor concrete compressive strength

ψ_c	1.0	Concrete C20/25
ψ_c	1.0	Concrete C30/37
ψ_c	1.0	Concrete C40/50
ψ_c	1.0	Concrete C50/60

Table 19: Installation safety factor

Combar®	$\gamma_{inst,(tension)}$	$\gamma_{inst,(shear\ load)}$
[mm]	[-]	[-]
Ø 12	1.2	1.0
Ø 16		
Ø 20		

Table 20: Tensile load-bearing capacities in masonry

No	Masonry type	f_b	c_{min}	Rod diameter	$N_{Rk,b}$ (24°C/40°C)		$N_{Rk,b}$ (50°C/80°C)		$\alpha_{pressure}$
		[N/mm²]	[mm]	[mm]	[kN]	[kN]	[kN]	[kN]	
					dry	wet	dry	wet	
1	Perforated bricks HLZ 2df	18.5	80	12/16/20	4.4	1.7	4.4	1.7	0,72
2	Perforated bricks HLZ 12df	27.1	185	12/16/20	5.8	2.2	5.8	2.5	0,7
3	Perforated bricks HLZ (Spain)	43.3	100	12/16/20	4.4	1.7	4.4	1.7	0,65
4	Perforated bricks HLZ (Benelux)	24.5	100	12/16/20	3.0	1.2	3.0	1.2	1,0
5	Performed calcium silicate brick KSL	21.0	90	12/16/20	6.7	4.0	6.7	4.0	1,0
6	Hollowblock lightweight concrete HBL	2.0	120	12/16/20	1.1	1.1	1.1	1.1	1,0
7	Hollowblock lightweight concrete HBL France	4.8	100	20	4,0	4,0	4,0	4,0	0,95
8	Solid lightweight concrete brick V	2.0	120	12/16/20	1.6	1.6	1.6	1.6	1,0
9	Calcium silicate brick KS	12.0	125	12/16/20	11.4	6.8	10.7	6.4	1,0
10	Calcium silicate block KSP	21.2	100	12/16/20	16.1	9.6	16.1	9.6	1,0
11	Solid clay brick MZ	17.5	90	12/16/20	4.9	1.9	4.3	1.7	1,0
12	Aerated concrete	4.0	50	12	2.0	1.0	2.0	1.0	1,0
13	Aerated concrete	4.0	50	16	3.9	3.5	3.9	3.5	1,0
14	Aerated concrete	4.0	50	20	3.9	3.9	3.9	3.9	1,0

dry for D/D
wet for W/W and D/W

Table 20.1: Partial safety factor

$\gamma_{M,m}$	2.5	Masonry and/or brickwork
$\gamma_{M,ACC}$	2.0	Aerated concrete

Table 21: Shear load-bearing capacities in masonry, without lever arm parallel to the edge					
No	Masonry type	f_b	c_{min}	Rod Ø	$V_{Rk,b}$
		[N/mm²]	[mm]	[mm]	[kN]
1	Perforated bricks HLZ 2df	18.5	100	12/16/20	2.5[1)]
2	Perforated bricks HLZ 12df	27.1	100	12/16/20	4.8
3	Perforated bricks HLZ (Spain)	43.3	100	12/16/20	7.8
4	Perforated bricks HLZ (Benelux)	24.5	100	12/16/20	5.6
5	Performed calcium silicate brick KSL	21.0	90	12/16/20	4.8
6	Hollowblock lightweight concrete HBL	2.0	100	12/16/20	2.5
7	Hollowblock lightweight concrete HBL France	4.8	100	20	2.5[1)]
8	Solid lightweight concrete brick V	2.0	120	12/16/20	4.4[1)]
9	Calcium silicate brick KS	12.0	120	12/16/20	10.7[1)]
10	Calcium silicate block KSP	21.2	120 100	12/16/20	14.2[1)] 10.8[1)]
11	Solid clay brick MZ	17.5	120 90	12/16/20	13.0[1)] 8.4 [1)]
12	Aerated concrete	4.0	120 50	12	6.4[1)] 1.7[1)]
13	Aerated concrete	4.0	120 50	16	6.9[1)] 1.9[1)]
14	Aerated concrete	4.0	120 50	20	7.4[1)] 2.0[1)]

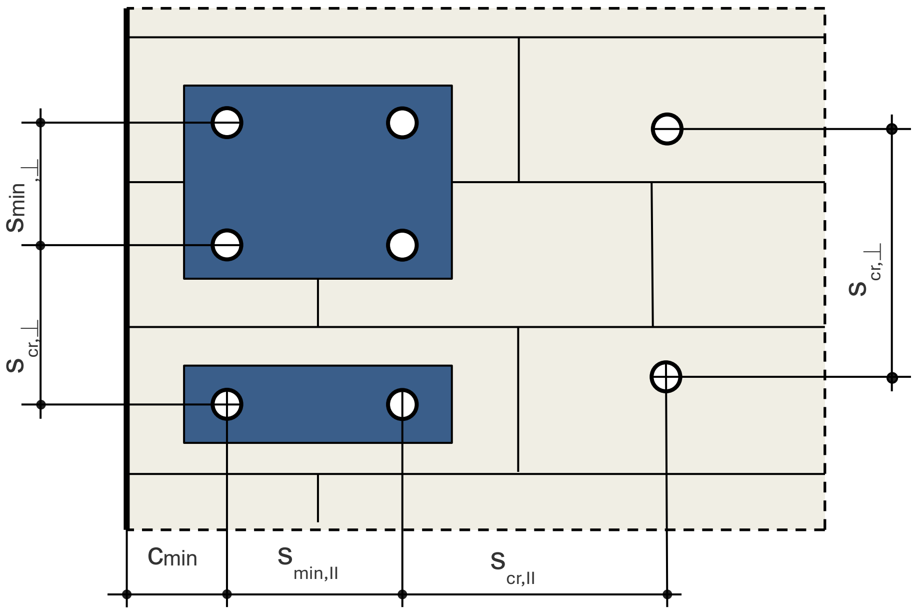
1) according to TR054 4.3.5, Please also refer to Table 20.

Table 29: β factor for construction site tests						
No	Masonry type	β_N (24°C/40°C)		β_N (50°C/80°C)		β_V
		dry	wet	dry	wet	
1-5	Perforated bricks HLZ	0.95	0.37	0.95	0.37	1.0
6	Performed calcium silicate brick KSL	0.95	0.57	0.95	0.57	1.0
7	Hollowblock lightweight concrete HBL	0.95	0.95	0.95	0.95	1.0
8	Hollowblock lightweight concrete HBL France	0,95	0,95	0,95	0,95	0.91
9	Solid lightweight concrete brick V	0.95	0.95	0.95	0.95	1.0
10	Calcium silicate brick KS	0.95	0.57	0.89	0.53	1.0
11	Calcium silicate block KSP	0.93	0.56	0.93	0.56	1.0
12	Solid clay brick MZ	0.95	0.37	0.85	0.33	0.81
13	Aerated concrete	0.90	0.43	0.90	0.43	0.87
14	Aerated concrete	0.95	0.85	0.95	0.85	0.87
15	Aerated concrete	0.95	0.95	0.95	0.95	0.87

Table 30: Spacing distances for fastening in masonry blocks

No	Masonry type	Dimension L/W/H	$s_{min,II}$	$s_{cr,II}$	$s_{cr,\perp} = s_{min,\perp}$	Factor group $\alpha_{g,N}$
		[mm]	[mm]	[mm]	[mm]	[-]
1	Perforated bricks HLZ 2df	240/115/113	max(80; 5d$_0$)	240	113	1.1
2	Perforated bricks HLZ 12df	370/240/249	max(80; 5d$_0$)	370	249	2.0
3	Perforated bricks HLZ (Spain)	340/250/115	340	340	115	1.0
4	Perforated bricks HLZ (Benelux)	510/250/139	510	510	139	1.0
5	Performed calcium silicate brick KSL	240/175/113	max(80; 5d$_0$)	240	113	1.5
6	Hollowblock lightweight concrete HBL	247/365/249	max(80; 5d$_0$)	250	250	2.0
7	Hollowblock lightweight concrete HBL France	490/190/195	490	490	195	1.0
8	Solid lightweight concrete brick V	247/365/249	max(80; 3d$_0$)	250	250	1.8
9	Calcium silicate brick KS	250/250/240	max(50; 3d$_0$)	250	240	2.0
10	Calcium silicate block KSP	995/605/303	max(50; 3d$_0$)	995	303	2.0
11	Solid clay brick MZ	235/115/110	max(50; 3d$_0$)	235	110	2.0
12-14	Aerated concrete	599/240/249	80	300	300	1.0

c_{min} see Table 27 and 28



EJOT Iso-Bar

Anchoring in masonry: edge and spacing distances

Annex 16

Table 31: Characteristic values for the buckling analysis					
Rod diameter		Unit	Ø12	Ø16	Ø20
Nominal diameter	D_n	[mm]	12	16	20
Area	A	[mm²]	113	201	314
Moment of inertia	I	[mm⁴]	1018	3217	7854
Modulus of elasticity	E	[N/mm²]	60000	60000	60000
Compressive strength	$f_c°$	[N/mm²]	265	265	265
Max. Compressive Force	P_{Rk}	[kN]	29.9	53.2	83.2

Table 31.1: Characteristic buckling load for a shear displacement δv = 5,0 and 3,0 mm						
			Free rotatable (Euler 1)		Not free rotatable (Euler 3)	
Size	Thickness of insulation	Lever arm	δv = 5,0mm $P_{Rk,ca}$	δv = 3,0mm $P_{Rk,ca}$	δv = 5,0mm $P_{Rk,ca}$	δv = 3,0mm $P_{Rk,ca}$
[mm]	[mm]	[mm]	[kN]	[kN]	[kN]	[kN]
12	80	91	15.9	21.8	15.9	21.8
	160	171	15.9	20.6	15.9	21.8
	300	311	6.2[1)]	6.2[1)]	11.8[1)]	11.8[1)]
16	80	93	37.4	55.2	37.4	55.2
	160	173	37.4	55.2	37.4	55.2
	300	313	19.4[1)]	19.4[1)]	36.2[1)]	36.2[1)]
20	80	95	48.8	74.2	48.8	74.2
	160	175	48.8	74.2	48.8	74.2
	300	315	46.9[1)]	46.9[1)]	48.8	74.2

[1)] Calculated values for Euler case are decisive

Table 31.2: Partial safety coefficients buckling verification		
$\gamma_{M,f}$	1,3	Pressure
$\gamma_{M,E}$	1,3	Modulus of elasticity

EJOT Iso-Bar	Annex 17
Proof of buckling	

To calculate the transverse load capacity $V_{(w)}$ for a displacement w for a cantilever arm, the equation applies:

$$V_{(w)} = \frac{3EI \cdot w}{l_h^3}$$

Verification in the limit state of serviceability $V_{(f)} \leq V_{Ek}$
Lever arm [mm] l_h = la + 0.5·dn + 0.5 t_{fixed}

Table 32: Transverse load capacity $V_{(w)}$ at a maximum deformation w = 3mm

Lever arm l_h	Ø 12	Ø 16	Ø 20
[mm]	[kN]	[kN]	[kN]
80	1.07	3.39	*
120	0.32	1.01	2,45
160	0.13	0.42	1,04
200	0.07	0.22	0,53
240	-	0.13	0,31
280	-	0.08	0,19
320	-	0.05	0,13

Table 32.1: Transverse load capacity $V_{(w)}$ at maximum deformation w = 5mm

Lever arm l_h	Ø 12	Ø 16	Ø 20
[mm]	[kN]	[kN]	[kN]
80	1,79	*	*
120	0,53	1,68	4.09
160	0,22	0,71	1.73
200	0,11	0,36	0.88
240	0,07	0,21	0.51
280	-	0,13	0.32
320	-	0,09	0.22

*$V_{Rk,con}$ in the CCT according to Table 20

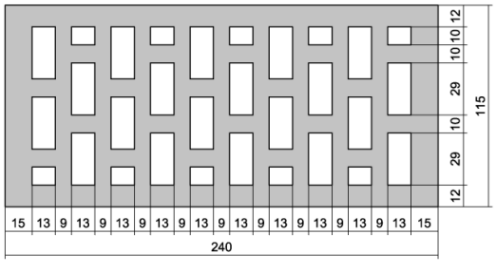
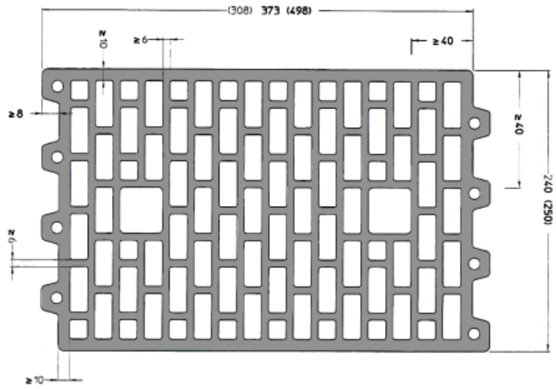
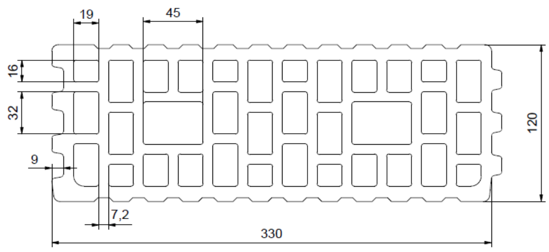
Table 33: Quantity of mortar required at a borehole depth l_1

Borehole l_1	Ø 12		Ø 16		Ø 20	
[mm]	Concrete and solid brick	Perforated stone with sieve sleeve	Concrete and solid brick	Perforated stone with sieve sleeve	Concrete and solid brick	Perforated stone with sieve sleeve
50	5 ml	-	7 ml	-	9 ml	-
70	7 ml	-	9 ml	-	11 ml	-
90	8 ml	-	11 ml	-	14 ml	-
100	9 ml	32 ml	12 ml	39 ml	16 ml	54 ml
110	10 ml	35 ml	13 ml	42 ml	17 ml	59 ml

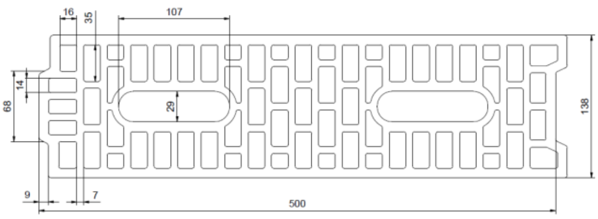
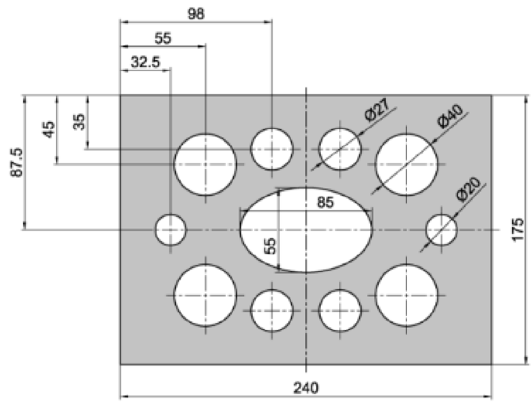
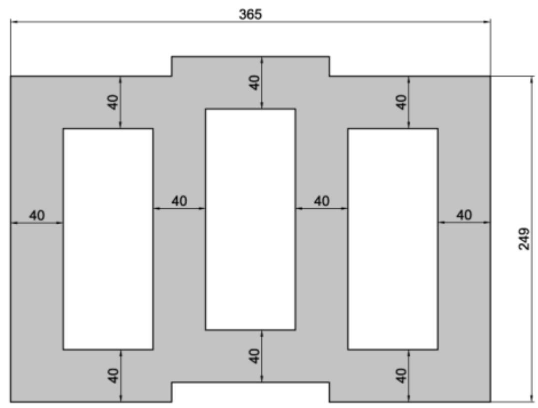
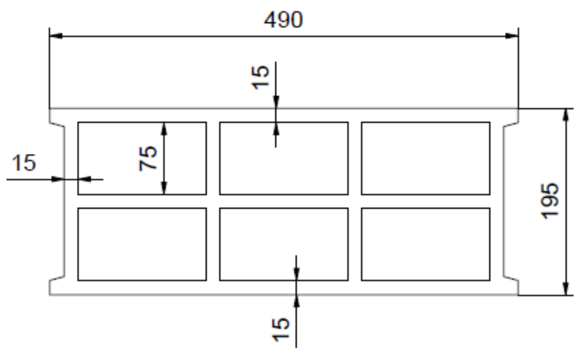
In concrete and solid stone $h_=$ l_1 - 10mm
In perforated stone with sieve sleeve h_{ef} = l_1 - 20mm

EJOT Iso-Bar	**Annex 18**
Displacement and quantity of morter	

Table 34: Geometry and dimensions of masonry

No	Masonry type	Dimensions L/W/H	Stone compressive strength Fb	Geometry
	[-]	[mm]	[N/mm²]	
1	Perforated brick HLZ 2df	240/115/113	12 ρ ≥ 1	
2	Perforated brick HLZ 12df	370/240/249	24 ρ ≥ 1	
3	Perforated brick HLZ 12df (Spain)	330/250/120	43 ρ ≥ 0,9	

EJOT Iso-Bar	Annex 19
Dimensions and geometry of masonry I	

4	Perforated brick HLZ 12df (Benelux)	500/250/1	24 ρ ≥ 1	
5	Lime-sand perforated brick KSL	240/175/113	12 ρ ≥ 1.5	
6	Hollow Block Lightweight Concrete HBL	247/365/249	2 ρ ≥ 0.5	
7	Hollow Block Lightweight Concrete HBL France	490/190/195	4,8 ρ ≥ 0.9	

EJOT Iso-Bar

Dimensions and geometry of masonry II

Annex 20

8	Lightweight concrete solid brick V	247/365/249	2 ρ ≥ 0.65	-
9	Sand-lime brick KS	250/250/240	12 ρ ≥ 1.8	-
10	Sand-lime block KSP	500/250/500	21 ρ ≥ 1.8	-
11	Solid clay bricks MZ	235/115/110	17 ρ ≥ 1.9	-
12-14	Aerated concrete flat block PP4/05	599/240/249	4 ρ ≥ 0.5	-

Anchorages subject to:

Static and quasi-static actions in tension, pressure, shear or combined tension and shear or combined pressure and shear load.

Specification of intended use:

The base material consist of reinforced or unreinforced normal weight concrete of minimum strength class C20/25 and maximum strength class C50/60 in accordance with EN 206-1.

The Iso-Bar may also be used for anchoring in masonry in accordance with EN 1996-1-1.

Temperature Range for use:

Minimum temperature = -40°C
T(24°C/40°C): (max. short term temperature +40°C and max. long-term temperature +24°C)
T(50°C/80°C) (max. short term temperature +80°C and max. long-term temperature +50°C)

Design:

The anchorages are to be designed under the responsibility of an engineer experienced in anchorages and masonry work with the applicable safety factors.
The design is carried out according to EOTA TR077 (12/2022)

Verifiable calculation notes and drawings shall be prepared taking account of the loads to be anchored, the nature and strength of the base materials and the dimensions of the anchorage members as well as of the relevant tolerances. The position of the anchor is indicated on the design drawings.

The Iso-Bar is anchored in the substrate of concrete, masonry or autoclaved aerated concrete.

Any other layer, e.g. tolerance levelling layers, adhesives, plaster covering the substrate or outside plasters are considered as to be non load bearing.

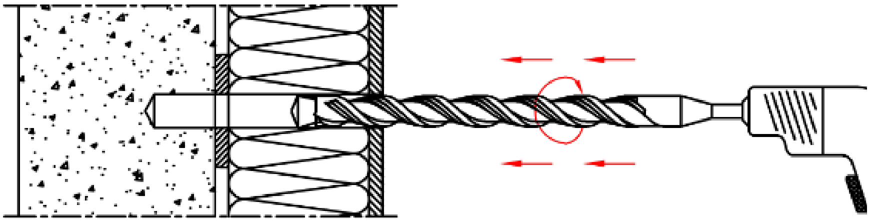
Anchorages in concrete under static or quasi-static actions are designed in accordance with EN 1992-4

Installation:

The EJOT Iso-Bar to be anchored must be installed in accordance with the design drawings prepared in accordance with the installation instructions (see Annex 26 to Annex 28).

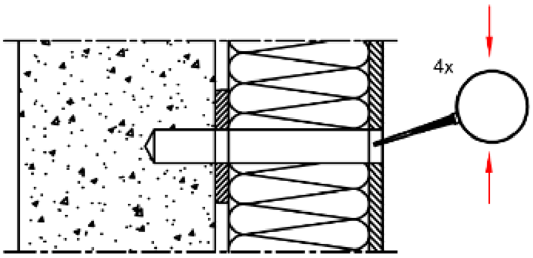
Before setting, the type of anchoring base and the thickness of the non-load-bearing layer must be determined.

For anchoring in the respective anchoring base (substrate side), the respective ETAs for the injection system (see Annex 3, Table 2) must be observed.



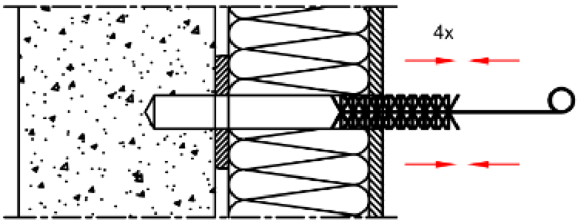
1. Drill hole
For installation values, see Table 2 in Appendix 2 / Installation instructions for composite anchors according to Table 3 in Appendix 4. Pre-drilling (centring hole) with approx. 0.5 x nominal drill diameter is recommended

Concrete and solid masonry: hammer drilling
Perforated building masonry: drill using rotary motion only



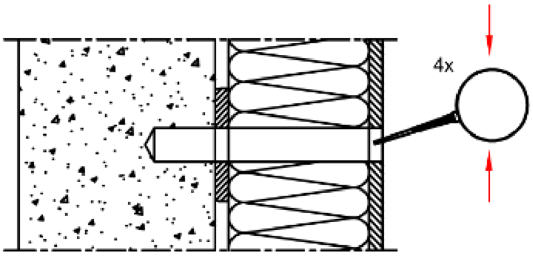
2. Clean the drill hole:

4x blow out

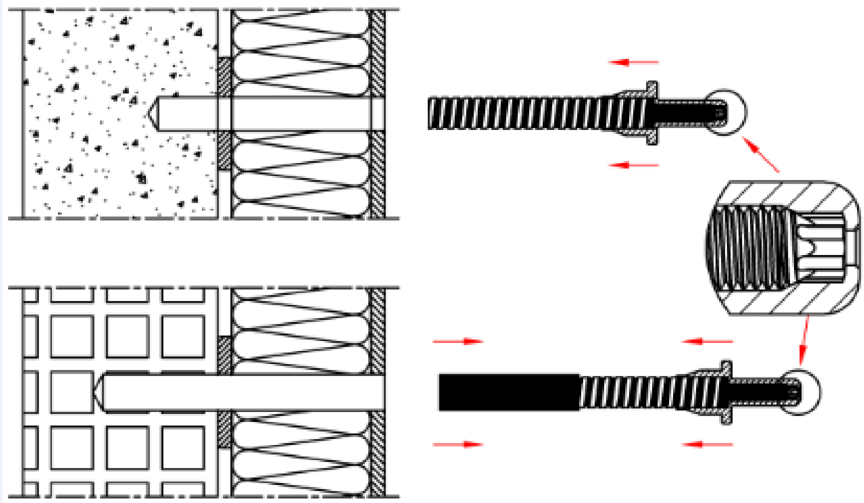


4x brush out

Note the brush diameter dB depending on the drill hole diameter according to Table 7 and Table 8 in Appendix 7



4 x blow out

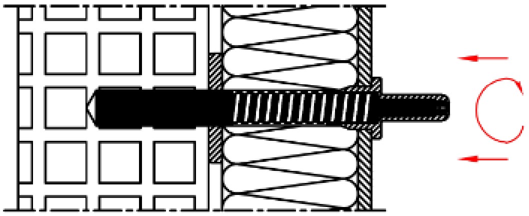


3. Expansion of plaster / end coating:

Push the installation tool onto the cut-to-length Iso-Bar until it stops. Check the position of the installation tool via the opening on the rear of the installation tool (see detailed illustration).

For perforated building masonry and cavities in solid building masonry, additionally place the metal sieve sleeve on the end of the rod in accordance with Appendix 8 and Appendix 9.

EJOT Iso-Bar	**Annex 23**
Assembly instructions I	

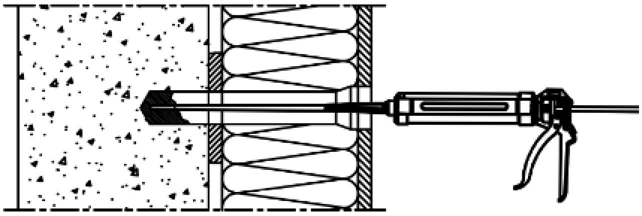


Insert the Iso-Bar into the drill hole, rotating it until the collar of the installation tool rests on the final coating (e.g. render).

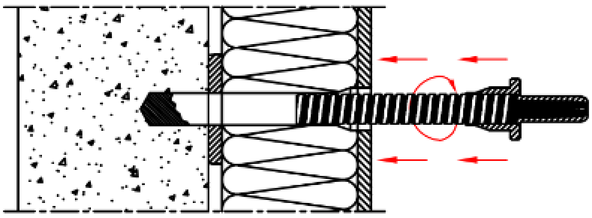
Use an open-ended spanner (SW 19) for hard/thick render coatings. For ceramic coverings or other hard end coatings, the end coating must be widened in relation to the drill hole. The extent of the widening depends on the rod diameter used (e.g. Iso-Bar Ø 20 mm --> widening 32 mm).

Carefully pull the Iso-Bar out of the borehole so that the position of the metal sleeve in the substrate remains unchanged.

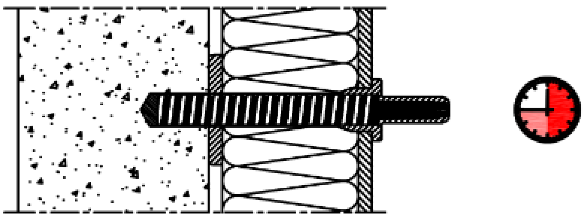
4. Bonding Iso-Bar:



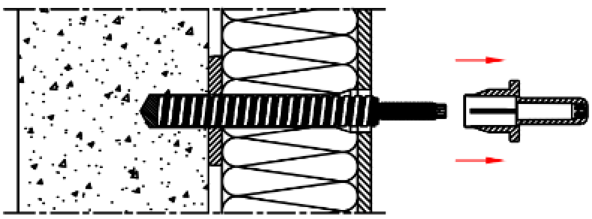
Fill the drill hole/metal sleeve from the bottom of the drill hole or metal sleeve without leaving any cavities. Depending on the thickness of the insulation material, an extension pipe may be required.



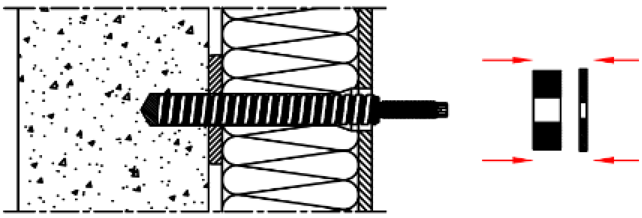
Insert the Iso-Bar with the mounting tool attached, turning it until the collar stops on the final coating (e.g. render).



Observe the setting time and processing time of the mortar in accordance with the approval composite anchor (see Table 3 in Appendix 4).



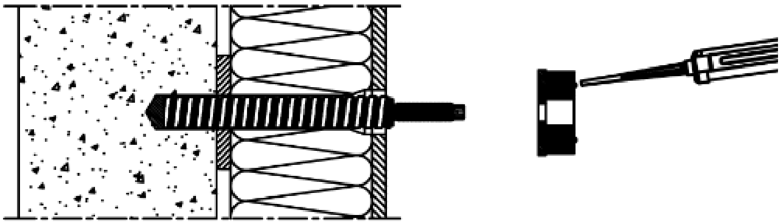
After the setting time has elapsed, pull the mounting tool axially backwards without turning it.



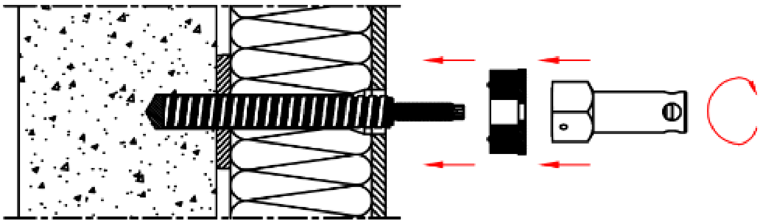
Install sealing element / attachment:

If necessary, pre-assemble the sealing element (place the sealing ring on the washer)

EJOT Iso-Bar	**Annex 24**
Assembly instructions II	

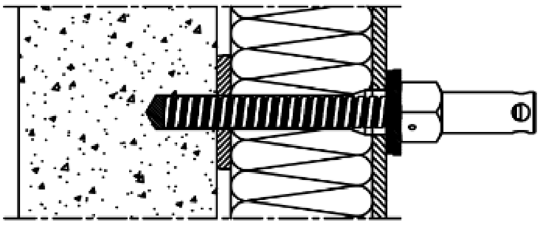


Apply a bead of suitable sealant (e.g. hybrid polymer sealant) to the side of the sealing ring facing the final coating (e.g. render).

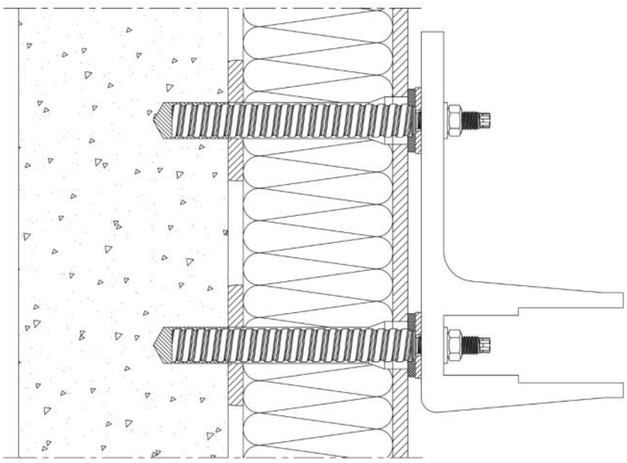


Place sealing element on connecting bolt / install attachment. Note the maximum installation torque according to Table 5 in Appendix 6.

Examples of attachments:



Climbing base for façade greening



Bracket for awnings

EJOT Iso-Bar

Assembly instructions III

Annex 25